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EXAMINER

LU, KUEN S

ART UNIT	PAPER NUMBER
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2167

DATE MAILED: 02/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/992,979

Applicant(s)

HAMMOND, JOEL K.

Examiner

Kuen S Lu

Art Unit

2167

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-66 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date #1-9/15/2004.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendments***

1. The Action is responsive to the Applicant's Amendments, filed on September 15, 2004.
2. The Applicant's amendments made to the current claims 1-2, 11-13, 16, 25-27 and new claims 33-66 is considered. The amended and new claims will be addressed together with the original claims in the Office Action for Final Rejection (hereafter "the Action"), as shown next.
3. As for the Applicant's Remarks on claim rejections, filed on September 15, 2004, has been fully considered by the Examiner, please see discussion in the section Response to Arguments, following the Action. Please note in the Action, the Examiner has introduced a new reference for specifically rejecting the amended limitations in the amended claims, wherein a new issue of additional query terms including "at least one term that is not synonymous with any identified key term" was introduced, while maintaining the same position as was set forth in the Office Action for Non-Final Rejection of March 8, 2004, for the rest of original or amended claims.
4. As for the Applicant's newly added method and apparatus claims 33-66, filed on September 15, 2004, have been addressed among the original and amended claims accordingly.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2167

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1-3, 8-9, 11, 13-17, 22-23, 25, 27-30, 32 and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Shultz (U.S. Patent 5,640,553), in view of Chang et al. (U.S. Pub. 2002/0052871 A1, hereafter "Chang") and further in view of Hals et al. (U.S. Pub. 2002/0078230 A1, hereafter "Hals").

As per Claims 1 and 13, Shultz teaches the following:

"prompting a user to enter a query" at Fig. 2, element 202 and col. 9, lines 31-32 by entering user's query;

"identifying key terms contained in the query" at Fig. 6B, element 142b and col. 23, lines 25-26 by determining the terms of the query entry string;

"identifying information that includes at least one of the terms in the expanded query" at Fig. 6B, element 142f and col. 23, lines 52-55 by only adding the expansion words from the semantic network which are the same part of speech;

"prompting the user to select at least one item of information identified as including at

least one of the terms in the expanded query” at Fig. 2, elements 202-206 and col. 9, lines 50-53 by user to use some or all of any retrieved file to compose a document directed to the search query;

“accessing an electronic file that contains the information selected by the user” at Fig. 6B, element 142j and col. 24, lines 19-21 by listing the result of the search output; and “providing access to a computer network associated with a plurality of electronic files containing information” at Fig. 3 by showing the network (element 108) and documents (incoming document – element 112 and document index database –element 117); and

Shultz does not specifically teach “a metadata database comprising identifying data for selectively accessing the electronic files”.

However, Chang teaches document retrieval according to metadata of documents at Fig. 3, elements s302-s308 and Page 2, [0057] wherein an obtained deep syntactic structure is compared with entries of a metadata database..

It would have been obvious to one having ordinary skill in the art at the time of the applicant’s invention was made to combine Chang’s teaching with Shultz’ by implementing metadata database of documents in Shultz’ system. Both references are directed to document retrieval. Further, the combined reference would have allowed Shultz’ users be able to retrieve documents by using metadata database of the documents as suggested by Chang at Fig. 3, elements s302-s308 and Page 2, [0057].

The combined Chang-Shultz reference further teaches “creating an expanded query to include additional terms predetermined to be related to the key terms in the query”

(See Shultz: at Fig. 6B, element 142e and col. 23, lines 46-52 by expanding query terms by adding semantic information terms).

The combined Chang-Shultz reference does not specifically teach that the additional key terms in the expanded query "including at least one term that is not synonymous with any identified key term".

However, Hals teaches query terms may be allocated from a variety of different categories and point values for forming, weighting and determining a search path of the web sites at Figs. 4-6 and Pages 6-7, [0057] and [0064], respectively. The teaching strongly suggests search terms need not be synonymous with those already identified.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Hals' teaching with the combined Chang-Shultz reference because the references are directed to simplifying and forming query structure, and the further combined reference would have allowed Shultz' users be able to flexibly selecting terms of synonymous or not-synonymous significance to form a less deep syntactical and less complex semantic query structure for efficiently retrieval of meaningful documents.

As per claims 2 and 16, Shultz further teaches the following:

"providing a vocabulary bridge having electronic files including groups of terms for expanding a query entered by the user" at Fig. 2, elements 202-206 and col. 9, lines 50-53 by user to use some or all of any retrieved file to compose a document directed to the search query;

“comparing key terms entered by the user as part of the query to the electronic files” at Fig. 6B, elements 142f, 142d, 142e and 142j, col. 23, lines 34-45 by comparing the key terms of query and performing the query against the electronic files; and

“adding to the query all terms in at least one group that contains at least one of the key terms to provide an expanded query containing both entered terms and un-entered terms” at Fig. 6B, element 142e and Fig. 2, element 206 by adding expansion word and some or all of a retrieved file for performing the query.

As per claims 3 and 17, Shultz further teaches “electronic files include dictionaries, thesauri, and authority files” at Fig. 2, element 208 and col. 9, lines 15-18 where the document database is library database for storing text, image, audio or other multi-media information representative of files provided by a plurality of publishers.

As per claims 8 and 22, Shultz further teaches “wherein the query is expanded to include at least one term associated with at least one term contained in the query” at Fig. 6B, element 142e and Fig. 2, element 206 by adding expansion word and some or all of a retrieved file for performing the query.

As per claims 9 and 23, Shultz further teaches “wherein the plurality of electronic files are all related to a pre-selected subject” at col. 32, lines 54-64 by storing documents in a particular subject database based on their discriminator weights.

As per claims 11 and 25, Shultz further teaches "the additional step of assigning identifying information to the user to enable the user to subsequently access and manipulate the query and the selected information" at Fig. 4, steps 335, 340 and 350 by session manager to get result, perform intersection and transmit to use for user to select document.

As per claims 14 and 15, Shultz further teaches the plurality of electronic files include "audio" and "video" elements capable of being transmitted over a computer network at Fig. 1, element 108 and col. 4, lines 26-33 and col. 8, lines 60-63 by searching video and audio records of multi-media files under a network architecture.

As per claim 27, Shultz further teaches the following:

"an electronically accessible computer network including at least one server for providing access to information available through the computer network" at Fig. 1, elements 102, 108 and 110 where users and servers including session, query and database servers are accessible through computer network;

"the computer network being associated with a plurality of electronic files containing information" at Fig. 1, elements 118 and 112 where database containing a plurality of electronic files; and

Shultz does not teach "a metadata database for accessing the electronic files".

However, Chang teaches document retrieval according to metadata of documents at Fig. 3, elements s302-s308 and Page 2, [0057].



It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to combine Chang's teaching with Shultz' by implementing metadata database of documents in Shultz' system because both references are directed to document retrieval and the combined reference would have separated information about documents from the documents data such that documents insertion, retrieval or removal would have been structured and the performance of the system would have been improved.

The combined Chang-Shultz reference further teaches "vocabulary bridge for expanding a query entered by a user" (See Shultz: Fig. 2, elements 202-206 and col. 9, lines 50-53 by user to use some or all of any retrieved file to compose a document directed to the search query).

The combined Chang-Shultz reference does not specifically teach "a user to define an expanded query with the query including one or more user-entered key terms and the expanded query including at least one non-user-entered term that is not synonymous with any of the user-entered key terms".

However, Hals teaches user may enter query terms allocated from a variety of different categories and point values for forming, weighting and determining a search path of the web sites at Figs. 4-6 and Pages 6-7, [0057] and [0064], respectively. The teaching strongly suggests search terms need not be synonymous with those already identified.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Hals' teaching with the combined

Chang-Shultz reference because the references are directed to simplifying and forming query structure, and the further combined reference would have allowed Shultz' users be able to flexibly selecting terms of synonymous or not-synonymous significance to form a less deep syntactical and less complex semantic query structure for efficiently retrieval of meaningful documents.

As per claim 28, Shultz teaches the following:

"providing a vocabulary bridge having electronic files including groups of terms for expanding a query entered by the user" at least one of the terms in the expanded query" at Fig. 2, elements 202-206 and col. 9, lines 50-53 by user to use some or all of any retrieved file to compose a document directed to the search query;

"comparing key terms entered by the user as part of the query to the electronic files" at Fig. 6B, elements 142f, 142d, 142e and 142j, col. 23, lines 34-45 by comparing the key terms of query and performing the query against the electronic files; and

"adding to the query all terms in at least one group that contains at least one of the key terms to provide an expanded query containing both entered terms and un-entered terms" at Fig. 6B, element 142e and Fig. 2, element 206 by adding expansion word and some or all of a retrieved file for performing the query.

As per claim 29, Shultz teaches "electronic files include dictionaries, thesauri, and authority files" at Fig. 2, element 208 and col. 9, lines 15-18 where the document

database is library database for storing text, image, audio or other multi-media information representative of files provided by a plurality of publishers.

As per claim 30, Shultz teaches "wherein the authority files include groups of related terms for expanding a query entered by a user to include un-entered terms relevant to entered terms" at Fig. 2, elements 202-206 and col. 9, lines 50-53 by user to use some or all of any retrieved file to compose a document directed to the search query;

As per claim 32, Shultz teaches "wherein the computer network is accessed using a personal computer" at Fig. 1, elements 102, 108 and 110 where users and servers including session, query and database servers are accessible through computer network.

As per claim 35, Shultz further teaches the following:

"presenting search results identifying a plurality of files having a plurality of file types" (See Fig. 4A and col. 14, lines 41-65 wherein Shultz' search results identifying 39 items of different file types is equivalent to Applicant's presenting search results identifying a plurality of files having a plurality of file types);

"wherein presenting the search results includes displaying at least a portion of the results within a graphical user interface having a plurality of user-selectable controls, with each control associated with a corresponding different file type and selectable to restrict display to a portion of the results having the corresponding different file type"

(See Figs. 4A-4C and col. 14, line 42 – col. 15, line 48 where the windows provide various file information for user to control, select, cut, paste and display specific or a grouping of files information is equivalent to Applicant's wherein presenting the search results includes displaying at least a portion of the results within a graphical user interface having a plurality of user-selectable controls, with each control associated with a corresponding different file type and selectable to restrict display to a portion of the results having the corresponding different file type).

As per claim 36, Shultz further teaches "wherein all terms in the one group are related to a predetermined subject matter" (See Fig. 4A and col. 14, lines 41-51 wherein Shultz' search terms are related to a pre-determined subjects, such as arts, sports, politics and religion is equivalent to Applicant's wherein all terms in the one group are related to a predetermined subject matter).

As per claim 37, Shultz further teaches "wherein the vocabulary bridge comprises means for expanding a query entered by a user" (See Fig. 2, elements 202-206 and col. 9, lines 50-53 by user to use some or all of any retrieved file to compose a document directed to the search query).

7. Claims 4, 7, 12, 18, 21, 26 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Shultz (U.S. Patent 5,640,553), in view of Chang et al. (U.S. Pub. 2002/0052871 A1, hereafter "Chang") and Hals et al. (U.S. Pub. 2002/0078230 A1,

hereafter "Hals") as applied to Claims 1-3, 8-9, 11, 13-17, 22-23, 25, 27-30 and 32, and further in view of Fries et al. (U.S. Patent 6,393,415, hereafter "Fries").

As per claims 4, 18, and 31, the combined teaching of Hals, Chang, Shultz and Chang references teaches query and expanded terms as previously described in claims 2, 16 and 28 rejections.

The combined teaching does not specifically teach "all of the terms contained within each individual group of terms are pre-determined to be related to each other".

However, Fries teaches Natural Language Parse grouping multiple words that represent a single conceptual term at col. 10, lines 7-10.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Fries' reference with the combined teaching of Hals, Chang and Shultz by further clarifying the query text and using NLP to modify the search query because by doing so the ambiguity of search query would have been minimized and the optimization of query would have been improved.

As per claims 7 and 21, Fries further teaches "the query is expanded to include at least one linguistic translation of at least one term contained in the query" at Fig. 9, elements 454-466 and col. 11, lines 42-48 by using NLP to convert keywords into possible search topics.

As per claims 12 and 26, Fries further teaches "additional step of displaying to the user a synopsis of information identified as including at least one of the terms in the expanded query" at Fig. 8, steps 330, 332, 334, 338, 340 and 342, and col. 19, lines 31-45 by displaying the expanded query to user for further modification.

8. Claims 5-6, 10, 19-20, 24, 33-34 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Shultz (U.S. Patent 5,640,553), in view of Chang et al. (U.S. Pub. 2002/0052871 A1, hereafter "Chang") and Hals et al. (U.S. Pub. 2002/0078230 A1, hereafter "Hals") as applied to Claims 1-3, 8-9, 11, 13-17, 22-23, 25, 27-30 and 32, and further in view of Macke et al. (U.S. Patent 6,249,784, hereafter "Macke").

As per claims 5 and 19, the combined teaching of Hals, Chang, Shultz and Chang references teaches query system and query terms expansion as previously described in claims 1 and 13 rejections.

The combined teaching does not specifically teach "wherein the query is expanded to include a biological sequence of at least one term contained in the query".

However, Macke teaches operating and searching named and annotated string databases for biological sequence.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Macke's reference with the combined teaching of Hals, Chang and Shultz references by including biological database into Shultz' system because the references are all directed to named string search and the

combination of teachings would have made the operation of biological sequence database more efficient and meaningful.

As per claims 6 and 20, Macke further teaches "wherein the query is expanded to include an identifier identifying a biological sequence of at least one term contained in the query" at Fig. 9, elements 92 and 95.

As per claims 10 and 24, Macke further teaches "wherein the pre-selected subject is biology" at the Abstract.

As per claims 33 and 38, the combined teaching of Hals, Chang, Shultz and Chang references teaches query system and query terms expansion as previously described in claims 1 and 27 rejections.

The combined teaching of Hals, Chang, Shultz and Chang references does not specifically teach "wherein the expanded query includes one or more first non-user-input terms based on one or more of the key terms and one or more second non-user-input terms based on one or more of the first non-user-input terms".

However, Macke teaches "wherein the expanded query includes one or more first non-user-input terms based on one or more of the key terms and one or more second non-user-input terms based on one or more of the first non-user-input terms" (See Abstract, last 3 lines, Figs. 3-4 and col. 7, lines 17 – col. 8, line 27 wherein Macke's result hit list based on search key input in Fig. 3 is the first non-user-input term, and the

extracted hits based on the on-user-input terms in Fig. 4 is the second non-user-input terms based on the first non-user-input terms is equivalent to Applicant's wherein the expanded query includes one or more first non-user-input terms based on one or more of the key terms and one or more second non-user-input terms based on one or more of the first non-user-input terms.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Macke's reference with the combined teaching of Hals, Chang and Shultz references by recursively extracting terms from search result list and converting into search terms for a subsequent search database by doing so users of Shultz' system would have been able to perform in-context database search for efficiently searching and retrieving documents.

As per claim 34, Macke further teaches "wherein the expanded query includes one or more first non-user-input terms based on one or more of the key terms, with one or more of the first non-user-input terms having a subject-matter-relationship with at least one of the key terms" (See Fig. 2 and col. 6, lines 57-62 wherein Macke's search module function is used to test if a search key matches the text referenced by each search hit is equivalent to Applicant's wherein the expanded query includes one or more first non-user-input terms based on one or more of the key terms, with one or more of the first non-user-input terms having a subject-matter-relationship with at least one of the key terms).



9. Claims 39-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Shultz (U.S. Patent 5,640,553) in view of Macke et al. (U.S. Patent 6,249,784, hereafter "Macke"), and further in view of Hals et al. (U.S. Pub. 2002/0078230 A1, hereafter "Hals").

As per claim 39, Shultz teaches "automatically searching at least one database based on a user-defined query that includes one or more key user-input terms" (See Figs. 3-4A and col. 12, lines 15-65 wherein Shultz' user entering query of search terms and server searching document index database and returning results is equivalent to Applicant's automatically searching at least one database based on a user-defined query that includes one or more key user-input terms); and "presenting search results based on the user-defined query, with the results identifying a plurality of files" (See Fig. 4A and col. 12, lines 15-65 wherein Shultz' server, based on user query terms entered, searching, returning and displaying items identifying a set of files is equivalent to Applicant's presenting search results based on the user-defined query, with the results identifying a plurality of files).

Shultz does not specifically teach the query results "with one or more of the files identified based on at least one non-user-input term that is not synonymous with any of the key user-input-terms".

Macke teaches using search terms retrieved from hit list database and search keys to search at Fig. 2 and col. 6, lines 57-66 is equivalent to Applicant's executing query based on at least one non-user-input-term.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Macke's teaching with Shultz reference by recursively extracting terms from search result list and converting into search terms for a subsequent search database by doing so users of Shultz' system would have been able to perform in-context database search with search terms combining from database and user keyword entry for flexibly defining the search string to perform an efficient search for documents.

The combined teaching of Macke and Shultz references does not specifically teach the non-user-input term that is not synonymous with any of the key user-input-terms.

However, Hals teaches query terms may be allocated from a variety of different categories and point values for forming, weighting and determining a search path of the web sites at Figs. 4-6 and Pages 6-7, [0057] and [0064], respectively. The teaching strongly suggests search terms need not be synonymous with those already identified.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Hals' teaching with the combined Macke-Shultz reference because the references are directed to simplifying and forming query structure, and the further combined reference would have allowed Shultz' users be able to flexibly selecting terms of synonymous or not-synonymous significance to form a less deep syntactical and less complex semantic query structure for efficiently retrieval of meaningful documents.

As per claim 40, the Macke further teaches "wherein the plurality of files includes one or more files identified based on at least one other non-user-input term based on the one non-user-input term" (See Figs. 2-3, col. 6, lines 57-65 and col. 7, lines 17-25 wherein Macke's hits list data is extracted for converting results of keywords used for a subsequent search is equivalent to Applicant's wherein the plurality of files includes one or more files identified based on at least one other non-user-input term based on the one non-user-input term).

As per claim 41, Shultz further teaches the following:

"a misspelled version of one of the user-input terms" (See Fig. 4, element 325 and col. 12, lines 35-45 wherein Shultz' spelling check for query terms and optional search query with spelling error is equivalent to Applicant's a misspelled version of one of the user-input terms);

"a linguistic variation of one of the user-input terms" (See Fig. 2 and col. 9, lines 23-53 wherein Shultz' natural language search query for searching documents is equivalent to Applicant's linguistic variation of one of the user-input terms); or

"related by subject matter classification to at least one of the user-input terms" (See Fig. 4A and col. 14, lines 41-51 wherein Shultz' search terms are related to a pre-determined subjects, such as arts, sports, politics and religion is equivalent to Applicant's related by subject matter classification to at least one of the user-input terms).

As per claim 42, Shultz further teaches query terms have a causal semantic relationship at col. 3, lines 32-37 by semantically expanding the query search in responding to part of speech associated with each query term in the search.

However, Shultz does not specifically teach the causal semantic relationship between query terms is the one between "one non-user-input term" and "one key user-input term".

Macke teaches using search terms retrieved from hit list database and search keys to search at Fig. 2 and col. 6, lines 57-66 which further teaches query consisting of non-user-input key user-input terms.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Macke's teaching with Shultz reference by extracting terms having causal semantic relationship with key user-input terms, from search result because by doing so the number of relevant documents identified during the query search would have been maximized.

As per claim 43, Macke further teaches "wherein the one non-user input term identifies a first biological condition caused by a second biological condition identified by the one of the user-input terms" (See Fig. 9 and col. 21, lines 18-46 wherein Macke's searching "gallus gallus" following by an execution of database module by the input of "chicken loci" for finding the code sequences is equivalent to Applicant's wherein the one non-user input term identifies a first biological condition caused by a second biological condition identified by the one of the user-input terms).

As per claim 44, Macke further teaches "wherein the one of the first non-user input terms identifies at least one cause of an effect identified by the one of the user-input terms" (See Fig. 9 and col. 21, lines 18-46 wherein Macke's searching "gallus gallus" following by an execution of database module by the input of "chicken loci" for finding the code sequences is equivalent to Applicant's wherein the one of the first non-user input terms identifies at least one cause of an effect identified by the one of the user-input terms).

As per claim 45, Shultz teaches "presenting information regarding similarity or differences regarding information in a file" (See Fig. 4A and col. 14, lines 41-51 wherein Shultz' displaying query result of similar items with different contents is equivalent to Applicant's presenting information regarding similarity or differences regarding information in a file).

The Shultz reference does not specifically teach the query results including from one user-input term and one from non-user-input term.

Macke teaches using search terms retrieved from hit list database and search keys to search at Fig. 2 and col. 6, lines 57-66 is equivalent to Applicant's executing query based on at least one non-user-input-term.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Macke's teaching with Shultz reference by performing query based on non-user-input and user input terms and

comparing the query results because by doing so users Shultz would have been able to review the query results of key input terms with that from query terms derived from the hit lists to further improve the accuracy of documents retrieval.

As per claim 46, Shultz further teaches the following:

“wherein the search results include a plurality of file types” (See Fig. 4A and col. 14, lines 41-65 wherein Shultz’ search results identifying 39 items of different file types is equivalent to Applicant’s wherein the search results include a plurality of file types); “wherein presenting the search results includes displaying at least a portion of the results in with a graphical user interface having a plurality of user-selectable controls, with each control associated with a corresponding different file type and selectable to restrict display to a portion of the results having the corresponding different file type” (See Figs. 4A-4C and col. 14, line 42 – col. 15, line 48 where the windows provide various file information for user to control, select, cut, paste and display specific or a grouping of files information is equivalent to Applicant’s wherein presenting the search results includes displaying at least a portion of the results in with a graphical user interface having a plurality of user-selectable controls, with each control associated with a corresponding different file type and selectable to restrict display to a portion of the results having the corresponding different file type).

As per claim 47, Shultz further teaches “wherein the plurality of file types includes a map type or a genomics type, and the plurality of user-selectable controls includes a

control for restricting display of results to files of the map type” (See Fig. 4A and col. 14, lines 41-51 wherein a plurality of file types of query results are displayed under a set of control selections is equivalent to Applicant’s wherein the plurality of file types includes a map type or a genomics type, and the plurality of user-selectable controls includes a control for restricting display of results to files of the map type).

Shultz does not specifically teach controlling the display of query result files of genomics type.

However, Macke teaches query of genetic database and genetic sequence at Figs. 6A-6B, col. 10, lines 58-67 and col. 11, lines 1-25 where genome of a bacteria is position and displayed.

It would have been obvious to one having ordinary skill in the art at the time of the applicant’s invention was made to further combine Macke’s teaching with Shultz reference by extending the expanded query to a genetic database and genome application because the combined reference would have allowed users Shultz’ system to search a genetic database by using annotated text string.

As per claim 48, the combined Macke-Shultz reference teaches “wherein the plurality of file types includes a genomics type and a non-genomics type, and the plurality of user-selectable controls includes a control for restricting display of results to files of the genomics type” (See Shultz: Fig. 4A and col. 14, lines 41-51 wherein a plurality of file types of query results are displayed under a set of control selections, and Macke: Figs.

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6A-6B, col. 10, lines 58-67 and col. 11, lines 1-25 where genome of a bacteria is position and displayed).

As per claim 49, Shultz teaches defining a query "based on one or more user-input key terms" (See Figs. 3-4A and col. 12, lines 15-65 wherein Shultz' user entering query of search terms and server searching document index database and returning results is equivalent to Applicant's defining a query based on one or more user-input key terms).

Shultz does not specifically teach the defining a query based on "one or more first non-user-input terms".

Macke teaches using search terms retrieved from hit list database and search keys to search at Fig. 2 and col. 6, lines 57-66 is equivalent to Applicant's defining a query based on one or more first non-user-input terms.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Macke's teaching with Shultz reference by recursively extracting terms from search result list and converting into search terms for a subsequent search database by doing so users of Shultz' system would have been able to perform in-context database search with search terms combining from database and user keyword entry for flexibly defining the search string to perform an efficient search for documents.

The combined teaching of Macke and Shultz references does not specifically teach the non-user-input terms including at least one term that is not synonymous with any user-input key term.



However, Hals teaches query terms may be allocated from a variety of different categories and point values for forming, weighting and determining a search path of the web sites at Figs. 4-6 and Pages 6-7, [0057] and [0064], respectively. The teaching strongly suggests the non-user-input search terms including at least one term that is not synonymous with any user-input key term.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Hals' teaching with the combined Macke-Shultz reference because the references are directed to simplifying and forming query structure, and the further combined reference would have allowed Shultz' users be able to flexibly selecting terms of synonymous or not-synonymous significance to form a less deep syntactical and less complex semantic query structure for efficiently retrieval of meaningful documents.

Macke further teaches "defining the query to include one or more second non-user-input terms, with one or more of the second non-user-input terms based on one or more of the first non-user-input terms" (See Abstract, last 3 lines, Figs. 3-4 and col. 7, lines 17 – col. 8, line 27 wherein Macke's result hit list based on search key input in Fig. 3 is the first non-user-input term, and the extracted hits based on the on-user-input terms in Fig. 4 is the second non-user-input terms based on the first non-user-input terms is equivalent to Applicant's defining the query to include one or more second non-user-input terms, with one or more of the second non-user-input terms based on one or more of the first non-user-input terms.

As per claim 50, Shultz teaches "wherein defining a query based on one or more user-input key terms", "comprises receiving user-input terms and identifying key user-input terms by eliminating extraneous terms and punctuation from the user-input terms" (See Figs. 4A and 6B, col. 14, lines 1-15 and 41-51, and col. 23, lines 21-45 wherein Shultz' words in the query terms are analyzed and weighted to decide if they are slow words for contributing less or none to the query is equivalent to Applicant's wherein defining a query based on one or more user-input key terms, comprises receiving user-input terms and identifying key user-input terms by eliminating extraneous terms and punctuation from the user-input terms).

Shultz does not specifically teach defining a query based on one or more first non-user-input terms.

Macke teaches using search terms retrieved from hit list database and search keys to search at Fig. 2 and col. 6, lines 57-66 is equivalent to Applicant's executing query based on at least one non-user-input-term.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Macke's teaching with Shultz reference by recursively extracting terms from search result list and converting into search terms for a subsequent search database by doing so users of Shultz' system would have been able to perform in-context database search with search terms combining from database and user keyword entry for flexibly defining the search string to perform an efficient search for documents.

As per claim 51, Macke further teaches “wherein each of the first non-user-input terms has a subject-matter-relationship with at least one of the key user-input terms” (See Fig. 2 and col. 6, lines 57-62 wherein Macke’s search module function is used to test if a search key matches the text referenced by each search hit is equivalent to Applicant’s wherein each of the first non-user-input terms has a subject-matter-relationship with at least one of the key user-input terms).

As per claim 52, Shultz further teaches the following:

“presenting search results identifying a plurality of files having a plurality of file types” (See Fig. 4A and col. 14, lines 41-65 wherein Shultz’ search results identifying 39 items of different file types is equivalent to Applicant’s presenting search results identifying a plurality of files having a plurality of file types);

“wherein presenting the search results includes displaying at least a portion of the results within a graphical user interface having a plurality of user-selectable controls, with each control associated with a corresponding different file type and selectable to restrict display to a portion of the results having the corresponding different file type” (See Figs. 4A-4C and col. 14, line 42 – col. 15, line 48 where the windows provide various file information for user to control, select, cut, paste and display specific or a grouping of files information is equivalent to Applicant’s wherein presenting the search results includes displaying at least a portion of the results within a graphical user interface having a plurality of user-selectable controls, with each control associated with

a corresponding different file type and selectable to restrict display to a portion of the results having the corresponding different file type).

**10.** Claims 53-54 and 56-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Shultz (U.S. Patent 5,640,553) in view of Macke et al. (U.S. Patent 6,249,784, hereafter "Macke").

As per claim 53, Shultz teaches "defining a query based on one or more user-input terms" (See Figs. 3-4A and col. 12, lines 15-65 wherein Shultz' user entering query of search terms and server searching document index database and returning results is equivalent to Applicant's defining a query based on one or more user-input key terms).

Shultz does not specifically teach the defining a query based on "one or more first non-user-input terms".

Macke teaches using search terms retrieved from hit list database and search keys to search at Fig. 2 and col. 6, lines 57-66 is equivalent to Applicant's defining a query based on one or more first non-user-input terms.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Macke's teaching with Shultz reference by recursively extracting terms from search result list and converting into search terms for a subsequent search database by doing so users of Shultz' system would have been able to perform in-context database search with search terms

combining from database and user keyword entry for flexibly defining the search string to perform an efficient search for documents.

Macke further teaches “defining the query to include one or more second non-user-input terms, with one or more of the second non-user-input terms based on one or more of the first non-user-input terms” (See Abstract, last 3 lines, Figs. 3-4 and col. 7, lines 17 – col. 8, line 27 wherein Macke’s result hit list based on search key input in Fig. 3 is the first non-user-input term, and the extracted hits based on the on-user-input terms in Fig. 4 is the second non-user-input terms based on the first non-user-input terms is equivalent to Applicant’s defining the query to include one or more second non-user-input terms, with one or more of the second non-user-input terms based on one or more of the first non-user-input terms).

As per claim 54, Shultz further teaches “wherein each user-input terms on which the query is based is a key term” (See Fig. 4A and col. 14, lines 1-51 wherein Shultz’ window field allowing user to enter query string is equivalent to Applicant’s wherein each user-input terms on which the query is based is a key term).

As per claim 56, Shultz further teaches the following:  
“at least one term that is a misspelled version of one of the user-input terms” (See Fig. 4, element 325 and col. 12, lines 35-45 wherein Shultz’ spelling check for query terms and optional search query with spelling error is equivalent to Applicant’s at least one term that is a misspelled version of one of the user-input terms);

“at least one term that is a linguistic variation of one of the user-input terms” (See Fig. 2 and col. 9, lines 23-53 wherein Shultz’ natural language search query for searching documents is equivalent to Applicant’s at least one term that is a linguistic variation of one of the user-input terms); and

“at least one term that is related by subject matter classification of one of the user-input terms” (See Fig. 4A and col. 14, lines 41-51 wherein Shultz’ search terms are related to a pre-determined subjects, such as arts, sports, politics and religion is equivalent to Applicant’s at least one term that is related by subject matter classification of one of the user-input terms.

As per claim 57, Shultz further teaches query terms have a causal semantic relationship at col. 3, lines 32-37 by semantically expanding the query search in responding to part of speech associated with each query term in the search.

However, Shultz does not specifically teach the causal semantic relationship between query terms is the one between “one non-user-input term” and “one key user-input term”.

Macke teaches using search terms retrieved from hit list database and search keys to search at Fig. 2 and col. 6, lines 57-66 which further teaches query consisting of non-user-input key user-input terms.

It would have been obvious to one having ordinary skill in the art at the time of the applicant’s invention was made to further combine Macke’s teaching with Shultz reference by extracting terms having causal semantic relationship with key user-input

terms, from search result because by doing so the number of relevant documents identified during the query search would have been maximized.

As per claim 58, Macke further teaches "wherein the one non-user input term identifies a first biological condition caused by a second biological condition identified by the one of the user-input terms" (See Fig. 9 and col. 21, lines 18-46 wherein Macke's searching "gallus gallus" following by an execution of database module by the input of "chicken loci" for finding the code sequences is equivalent to Applicant's wherein the one non-user input term identifies a first biological condition caused by a second biological condition identified by the one of the user-input terms).

As per claim 59, Macke further teaches "wherein the one of the first non-user input terms identifies at least one cause of an effect identified by the one of the user-input terms" (See Fig. 9 and col. 21, lines 18-46 wherein Macke's searching "gallus gallus" following by an execution of database module by the input of "chicken loci" for finding the code sequences is equivalent to Applicant's wherein the one of the first non-user input terms identifies at least one cause of an effect identified by the one of the user-input terms).

**11.** Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over by Shultz (U.S. Patent 5,640,553) in view of Macke et al. (U.S. Patent 6,249,784, hereafter

"Macke"), as applied to claims 53 above, and further in view of Hals et al. (U.S. Pub. 2002/0078230 A1, hereafter "Hals").

As per claim 55, the combined teaching of Macke and Shultz references teaches query by using non-user-input and user-input query terms as previously described in claim 53 rejection.

The combined teaching of Macke and Shultz references does not specifically teach "wherein one or more of the first or second non-user-input terms is not synonymous with any of the user-input terms".

However, Hals teaches query terms may be allocated from a variety of different categories and point values for forming, weighting and determining a search path of the web sites at Figs. 4-6 and Pages 6-7, [0057] and [0064], respectively. The teaching strongly suggests search terms need not be synonymous with those already identified.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Hals' teaching with the combined Macke-Shultz reference because the references are directed to simplifying and forming query structure, and the further combined reference would have allowed Shultz' users be able to flexibly selecting terms of synonymous or not-synonymous significance to form a less deep syntactical and less complex semantic query structure for efficiently retrieval of meaningful documents.



12. Claims 61-63 and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Shultz (U.S. Patent 5,640,553) in view of Macke et al. (U.S. Patent 6,249,784, hereafter "Macke").

As per claim 61, Shultz teaches a graphic user interface system "wherein the plurality of file types includes a map type or a genomics type, and the plurality of result controls includes a control for restricting display of results to files of the map type" (See Fig. 4A and col. 14, lines 41-51 wherein a plurality of file types of query results are displayed under a set of control selections is equivalent to Applicant's wherein the plurality of file types includes a map type or a genomics type, and the plurality of user-selectable controls includes a control for restricting display of results to files of the map type).

Shultz does not specifically teach controlling the display of query result files of genomics type.

However, Macke teaches query of genetic database and genetic sequence at Figs. 6A-6B, col. 10, lines 58-67 and col. 11, lines 1-25 where genome of a bacteria is position and displayed.

It would have been obvious to one having ordinary skill in the art at the time of the applicant's invention was made to further combine Macke's teaching with Shultz reference by extending the expanded query to a genetic database and genome application because the combined reference would have allowed users Shultz' system to search a genetic database by using annotated text string.

As per claim 62, the combined Macke-Shultz reference teaches "wherein the plurality of file types includes a genomics type and a non-genomics type, and the plurality of user-selectable controls includes a control for restricting display of results to files of the genomics type" (See Shultz: Fig. 4A and col. 14, lines 41-51 wherein a plurality of file types of query results are displayed under a set of control selections, and Macke: Figs. 6A-6B, col. 10, lines 58-67 and col. 11, lines 1-25 where genome of a bacteria is position and displayed).

As per claim 63, the combined Macke-Shultz reference teaches "wherein the plurality of file types includes a map type, a multimedia type, a genomic type, and a journal type; and the plurality of result controls includes a control for restricting display of results to files of the map type, a multimedia type, a genomic type, and a journal type (See Shultz: Fig. 4A and col. 14, lines 41-51 wherein a plurality of file types and control for restricting the display of query results, including map, multi-media and journal types, and Macke: Figs. 6A-6B, col. 10, lines 58-67 and col. 11, lines 1-25 where genome of a bacteria is position and displayed).

As per claim 65, the combined Macke-Shultz reference teaches "wherein the plurality of file types includes a genomic type and a journal type" (See Shultz: Fig. 4A and col. 14, lines 41-51 wherein a plurality of file types and control for restricting the display of query results, including map, multi-media and journal types, and Macke: Figs. 6A-6B,

col. 10, lines 58-67 and col. 11, lines 1-25 where genome of a bacteria is position and displayed).

***Claim Rejections - 35 USC § 102***

**13.** The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**14.** Claims 60, 64 and 66 are rejected are rejected under U.S.C. 102(b) as anticipated by Shultz (U.S. Patent 5,640,553).

As per claim 60, Shultz further teaches the following:

“a plurality of ser-selectable controls, including at least one control for submitting a query and a plurality of result controls for controlling display of search results associated with the query” (See Fig. 4A and col. 14, lines 41-65 wherein Shultz’ query entry field for submitting query and query result display control fields for controlling the display of search results identifying 39 items of different file types is equivalent to Applicant’s a plurality of ser-selectable controls, including at least one control for submitting a query and a plurality of result controls for controlling display of search results associated with the query); and

“with each result control associated with a corresponding different file type and selectable to restrict display of search results to its corresponding different file type” (See Figs. 4A-4C and col. 14, line 42 – col. 15, line 48 where the windows provide

various file information for user to control, select, cut, paste and display specific or a grouping of files information is equivalent to Applicant's with each result control associated with a corresponding different file type and selectable to restrict display of search results to its corresponding different file type).

As per claim 64, Shultz teaches "a results control for causing display of a plurality of file types within the search results" (See Fig. 4A and col. 14, lines 41-51 wherein a plurality of file types and control for restricting the display of query results, including map, multi-media and journal types is equivalent to Applicant's a results control for causing display of a plurality of file types within the search results).

As per claim 66, Shultz teaches "wherein the interface is stored on a server for distribution to at least one access device" (See Fig. 6 and col. 10, lines 38-65 wherein Shultz' query engine interface is implemented on the session server hardware platform is equivalent to Applicant's wherein the interface is stored on a server for distribution to at least one access device).

### ***Response to Arguments***

**15.** The Applicants' arguments filed on September 15, 2004 have been fully considered, for the Examiner's response, please see discussion below.

At pages 13-14, concerning claims 1, 13 and 27, the Applicant argued that the teaching of Shultz, Chang, Fries, Macke or their combined teaching as set forth by the Examiner does not teach the expansion queries to include non-synonymous terms.

As to the above arguments, the Examiner respectfully disagrees. First of all, the reference(s) cited by the Examiner teaches every limitation of the claims, as previously set forth in the Examiner's Office Action for non-Final Rejection, dated March 8, 2004. In this Office Action for Final Rejection, the Examiner has introduced a Hals reference to provide the teaching of expanded queries to include not synonymous terms. The Examiner specifically utilized the reference for providing teaching of "expanded queries to include not synonymous terms", instead of "expanded queries to include non-synonymous terms".

As to dependent claims 2-12, 14-26 and 28-32, which directly or indirectly depend on claims 1, 13 and 27, respectively, the Examiner applies the above stated arguments for the respective claim upon which they depend.

The newly added claims 33-66 have been addressed together with the respective method and system claims accordingly.

**16.** In light of the forgoing arguments, the 35 U.S.C 102 rejection for Claims 60, 64 and 66 and 35 U.S.C. 103 rejection for claims 1-59, 61-63 and 65, is hereby sustained.

**17.** The prior art made of record

- A. U.S. Patent      5,640,553
- B. U.S. Publication   2002/0052871 A1
- C. U.S. Patent      6,460,029
- D. U.S. Patent      6,249,784

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H. U.S. Publication 2002/0078230 A1

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

E. U.S. Patent 5,873,076

F. U.S. Patent 6,393,415 B1

G. U.S. Patent 6,523,022 B1

### ***Conclusions***

#### **18. THIS ACTION IS MADE FINAL.**

The Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

**19.** The prior art made of record, listed on form PTO-892, and not relied upon, if any, is considered pertinent to applicant's disclosure.

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If a reference indicated as being mailed on PTO-FORM 892 has not been enclosed in this action, please contact Lisa Craney whose telephone number is 571-272-3574 for faster service.

**20.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuen S Lu whose telephone number is 571-272-4114.

The examiner can normally be reached on 8 AM to 5 PM, Monday through Friday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on 571-272-4107. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

Kuen S. Lu

  
Patent Examiner

February 8, 2005

  
Luke Wassum

Primary Examiner

February 8, 2005